

ABSTRACT OF THE DISCLOSURE

A (MEMS)-based gas sensor assembly for detecting a fluorine-containing species in a gas containing same, e.g., an effluent of a semiconductor processing tool undergoing etch cleaning with HF, NF₃, etc. Such gas sensor assembly in a preferred embodiment comprises a free-standing silicon carbide support structure having a layer of a gas sensing material, preferably nickel or nickel alloy, coated thereon. Such gas sensor assembly is preferably fabricated by micro-molding techniques employing sacrificial molds that are subsequently removable for forming structure layers.